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MILLER'S ESSENTIALS OF PERSPECTIVE.

In 'Essentials of perspective' Prof. L. W. Miller sets forth in a very attractive manner the principles of this study of representation which has grown to be such a bugbear among artists and draughtsmen.

In his method of treatment, the author has achieved considerable success; for, while pointing out and emphasizing all right principles, he has presented the subject in a purely objective manner, which renders it exceedingly agreeable to the student.

Recognizing Professor Ware of Columbia as a teacher, Professor Miller endeavors to present as much science as the artist ever has occasion to use; and, steering clear of technical treatment and purely theoretical discussion, leading principles are successively developed by the aid of cases of direct application to practical work.

The value of this method is agreeably shown in the chapter on horizons, where the subject is efficiently covered without reference to the geometrical analysis usually involved.

That portion devoted to curvilinear perspective is particularly interesting, from the graphic manner in which the bearings of this somewhat obscure branch are brought out.

The book will find its most valuable place with artists and architectural draughtsmen, and should do much to rescue the study of perspective from the neglect into which it has fallen.

LA TERRE DES MERVEILLES.

OUR western surveys have been the opportunity of numerous writers abroad. Foreign travellers are very susceptible to the attractions of our exceptional wonders, and devote themselves to Niagara, the Yosemite, the Yellowstone park, and the Colorado Cañon, much after the fashion of historians who write chiefly about kings and battles, and say little about the common people in the dull times of peace and prosperity. But it is still proper enough that great kings and decisive battles, or curious regions where nature has done, or, better yet, is still doing, her most wonderful and peculiar work, should take the most of our attention. This must be so as long as the diamond is prized as a gem. Mr. Leclercq, president of the Royal geographical society of Belgium, is therefore fully warranted in dividing the account of his travels in this country into three volumes; one telling of the trip from the Atlantic to the Rocky

Essentials of perspective. By L. W. MILLER. New York, Scribner. 12°.

La terre des merveilles. Par JULES LECLERCQ. Paris, Hachette. 8°.

Mountains, another given to an overland journey to Mexico, and a third devoted to the Yellowstone national park. The last is very neatly done. It is intelligently written, without undue excitement or exaggeration; it is well illustrated by good woodcuts drawn from photographs, and not from the imagination of the usual Parisian artist, who has so often given free rendering to his home-made conceptions of foreign lands. We should be fortunate if all travellers' stories were as well told.

LETTERS TO THE EDITOR.

[Continued from p. 616.]

Instinct in the cockroach.

I WISH to bring before the notice of your readers the following curious instance of the operation of instinct in the cockroach (*Blatta*). During the hot months of the year, my laboratory is to some extent infested by these active insects, and I have been for several years observing their habits. At the distance of two feet above one of the benches, and fixed to the wall, is a double gas-bracket, the outer arm of which is seventeen inches long from the joint to the burner. On more than a dozen occasions, I have observed that a full-grown cockroach would climb up the gas-pipe and along the bracket towards the burner, but, finding the bracket a few inches from the flame too hot to traverse, would crawl back a few inches, wait a second or two, and then return towards the flame. If uninterfered with, he would, after a few trials, leave the bracket altogether, and return down the pipe, and run off at full speed. But I wished to see how he would act under peculiar circumstances. I therefore heated the bracket by the flame of a Bunsen lamp at a point fourteen inches from the tip and three inches from the joint, and waited. The insect, as usual, tried to leave the bracket by walking back towards the wall, but, finding his retreat cut off by the heated metal, became very much excited, and commenced running rapidly between the distal end of the bracket and the part which I had heated. After doing this several times, he selected the coolest part of the bracket, midway between the illuminating flame and the part heated by the Bunsen, crouched for a spring, and leaped on to the bench. He was running off rapidly, when I swept him from the bench, and crushed him on the floor with my boot. The insect deserved to escape, but I killed him because I wanted to observe the action of a fresh cockroach every time under the same circumstances. On more than a dozen occasions has the same performance been gone through. By many people such action would be accounted for by the mere word 'instinct,' but it seems to me singularly like the operation of reason. This is exactly what takes place when a fire occurs in a high building. The inmates (particularly women) jump wildly from the upper windows without waiting to see whether all other means of escape are exhausted — and get smashed on the pavement. Our friend 'the unspeakable Turk' says that women have no souls, and yet, although much higher in organization than the cockroach, they act, in similar circumstances, precisely in the same way.

GEORGE HAY, M.D.

Pittsburg, Penn., June 7.